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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Application Number: 09/496,990
Filing Date: February 02, 2000
Appellant(s): YIP ET AL.

Thinh Nguyen Reg. No. 42,034
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed October 22, 2007 appealing from the Office

action mailed January 18, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6490249   Aboul-Magd et al.   12-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Note:

The rejection to claims 10-11, 22-23, 34-35, 45-46, and 57-58 has been

removed.

These claims are now objected to as being dependent to a rejected claim.

Claims 1-9, 12-21, 24-33, 36-45, 48-57, and 60 are rejected under 35

U.S.C. 102(e) as being anticipated by Aboul-Magd (6490249).

Regarding claims 1, 13, 25, 37, and 49, Aboul-Magd teaches an apparatus to

control connection admission for a connection request in a network (Abstract, lines 1 –

4), the apparatus comprising:

a first estimator to estimate an equivalent cell rate (ECR) (Column 3, lines 38 –

40; Column 4, lines 56 – 60) based on description of the connection request (Column 1,

lines 22 – 29), the description including a booking factor (Column 9, lines 58 – 60; line

64; Column 10, lines 5 – 10; were the ECR/EBR equations use overbooking and underbooking);

a second estimator to estimate a measured utilization factor for admitted connections the network using measurement of data streams (Column 3, lines 38 – 40; Column 5, lines 1 – 17) arriving at queues (Column 2, lines 41 – 42) and the booking factor (Column 6, lines 12 – 16; lines 31 – 35; lines 53 – 55); and

a controller coupled to the first and second estimators to generate an admission decision comprising: (Column 7, lines 30 – 58)

an additional request processor to generate the admission decision based on a request resource equal to a product of the ECR and the booking factor (Column 7, lines 30 – 58), and a resource allocation rule using a hierarchical resource organization (Column 9, lines 24 – 28; 40 – 48), and a resource updater to update a resource reservation using the ECR, the booking factor and the estimated measured utilization factor (Column 6, line 60 – 67).

Regarding claims 2, 14, 26, 38, and 50, Aboul-Magd teaches the apparatus of claims 1, 13, 25, 37, and 49, wherein the descriptor includes a connection descriptor and a QoS descriptor (Column 2, lines 9 – 16).

Regarding claim 3, 15, 27, 39, and 51, Aboul-Magd teaches the apparatus of claims 2, 14, 26, 38, and 50, wherein the connection descriptor includes: at least one of a cell rate, a transport device speed, a queue depth, a cell loss ratio, and a link capacity (Column 5, lines 65 – 67; Column 6, lines 13 – 16).

Regarding claims 4, 16, 28, 40, and 52, Aboul-Magd teaches the apparatus of

claims 3, 15, 27, 39, and 51, wherein the cell rate is one of a peak cell rate, a sustained

cell rate, a maximum burst size, and a minimum cell rate (Column 2, lines 26 – 31).

Regarding claims 5, 17, 29, 41, and 53, Aboul-Magd teaches the apparatus of

claims 4, 16, 28, 40, and 52, wherein the QoS descriptor is one of a constant bit rate, a

real-time variable bit rate, a non-real-time variable bit rate, an unspecified bit rate, an

available bit rate, and a guaranteed frame rate (Column 2, lines 26 – 31).

Regarding claims 6, 18, 30, 42, and 54, Aboul-Magd teaches the first estimator

comprises: a scale factor generator to provide a scale factor, the scale factor generator

comprising a look-up table having entries computed for the QoS descriptor, the entries

being indexed by the connection descriptor; and a scaler coupled to the scale factor

generator to scale the cell rate corresponding to the QoS using the scale factor, the

scaled cell rate corresponding to the estimated ECR (Column 5, lines 47 – 57; where

the CAC descriptors are considered map (look-up table) the admission request into one

of the bandwidth pool that based handles the needs to the CAC descriptor).

Regarding claims 7, 19, 31, 43, and 55, Aboul-Magd teaches the apparatus of

claims 6, 18, 30, 42, and 54, wherein the look-up table is one of a CBR look-up table

and a VBR look-up table, the CBR look-up table corresponding to the CBR, the VBR

look-up table corresponding to the VBR (Column 5, lines 47 – 57, where the second

case of bandwidth pooling involves mapping the service classes into separate

bandwidth pools and that classes are defined on Column 2, lines 26 – 31).

Regarding claims 8, 20, 32, 44, and 56, Aboul-Magd teaches the apparatus of

claims 7, 19, 31, 43, and 55, wherein the CBR look-up table is indexed by a cell rate

parameter and the transport device speed, the cell rate parameter being within a range

from unity to the PCR (Column 2, lines 26 – 31).

Regarding claims 9, 21, 33, 45, and 57, Aboul-Magd teaches the apparatus of

claims 8, 20, 32, 44, and 56, wherein the scale factor is one of the entries indexed by

the cell rate parameter and the transport device speed (Column 5, lines 47 – 49; where

the scale factor and mapping depends on classes and the classes depends on the CAC

criterion, a scaled/weighted calculation of cell rates and speeds and QoS information).

Regarding claims 12, 24, 36, 48, and 60, Aboul-Magd teaches the apparatus of

claims 1, 13, 25, 37, and 49, wherein the second estimator comprises: a capacity

estimator to estimate a minimum resource needed for the admitted connections meeting

quality of service requirements within the measurement window; and a measured

utilization factor generator coupled to the capacity estimator to generate the measured

utilization factor using the estimated minimum resource and measurement parameters

(Column 5, lines 1 – 39).

(10) Response to Argument

Regarding claim 1, the appellant argues that Aboul-Magd, (1) a first estimator to

estimate an ECR based on description of the connection request, the description

including a booking factor; (2) a second estimator to estimate a measured utilization

factor for admitted connections in the network using measurements connection request

arriving at queues and the booking factor; (3) a controller to generate an admission

decision based on the estimated ECR and the estimated measured utilization factor, (a)

an addition request processor that generates the admission decision based on a

request resource using the ECR and the booking factor, and (b) a resource updated to

update a resource reservation using the ECR, the booking factor, and the estimated

measured utilization factor.

The examiner disagrees

(1) The first estimator deals with estimating the traffic flow of a new connection.

In Column 1, lines 22 – 29 shows that new connection requests include a description of

the new request or what the new request expects to use in terms of bandwidth in the

network. Column 4, lines 56 – 63 and Column 6, lines 60 - 64, discloses that the EBR_c

algorithm is the estimated traffic computed by the admission based on the description.

Column 1, lines 22 - 29 and Column 4, lines 60 - 63, disclose that the description

includes a definition about how much bandwidth for the connection the new connection

is going to need or "book".

(2) The second estimator deals with estimating how much traffic is currently

being used in the network by the previously admitted connections. In column 5, lines 1

– 17, Aboul-Magd discloses that the utilization of current connections in the network are

being determined. Column 6, lines 64 – 66 discloses that this utilization is based on the

estimation used to previously calculate the initial connection estimation.

(3) Aboul-Magd teaches a controller to generate an admission decision (Figure 1, final step connection admitted or rejected) based on the estimated ECR (connection setup message/mathematical CAC) and estimated measured utilization factor (Network measurements). This is more clearly seen in Column 6, line 22, where the equation shows that the connection request admission is calculated by using the ECR (EBRC) and the estimated measured utilization factor (u).

(a) Aboul-Magd also teaches that the addition requests are processed (Figure 4) and given an admission decision based on the request resource (the measured network traffic, u, and the estimated traffic), the ECR (the computed EBRC), and the booking factor (ubf and obf).

(b) Finally, the reference also teaches an updated resource reservation using the ECR, booking factor, and the estimated measured utilization factor is seen in Column 6, lines 60 – 67, where it shows the new connection request and its ECR are combined with the sum of the ECR's and the pool utilization of all the connections admitted to the network to create an entire map of resource usage.

Regarding claim 6, the appellant argues that Aboul-Magd's teaching placing class services into bandwidth pools does not include a look-up table.

The examiner disagrees:

Aboul-Magd teaches taking CAC descriptors of connections are placing those into class services, and placing those class services into bandwidth pools (Column 5,

lines 47 – 57). For the system to determine which CAC criterion or description corresponds to what number of service class there must be some correspondance between identifying which level of necessary bandwidth is given to which criterion. This is equivalent to the QoS descriptor indexing the scale factor. In Aboul-Magd there must be some sort of data structure that provides the indication to which level of criterion maps to what service class. This is the same as a look up table; one identifies the criterion then "looks up" what service class this corresponds too.

Regarding claim 7, the appellant argues that Aboul-Magd does not disclose separate look-up tables for CBR and VBR.

The examiner disagrees:

Claim 7 recites "wherein the look-up table is **one of** a CBR look-up table and a VBR look-up table." This puts the limitation into an alterative form, the look-up table only needs to be either a CBR look-up table or a VBR look-up table to meet the limitation of "one of" them. Column 5, lines 47 – 49 teaches that the CAC criterion determine to which service class the connection gets mapped. Column 5, lines 1 – 6 and Column 2, lines 26 - 29 teaches the CAC function tries to measure a constant bit flow but takes into account variable traffic. So the look up table takes into account both constant and variable rates when classifying the service requirements.

Regarding claim 8, the appellant argues that Aboul-Magd does not take into account the table is indexed by a cell rate parameter and the transport device speed.

The examiner disagrees:

Once again, the look-up table in indexed by the CAC criterion (Column 5, lines 47 – 49) and this CAC criterion takes into account the user's traffic profile (Column 1, lines 22 -23). The traffic profile includes things like cell rate parameters (Column 1, lines 24 - 26, sustained rate) and transport device speed (Column 1, lines 24 - 26, peak rate).

Regarding claim 9, the appellant argues that Aboul-Magd does not disclose that the scale factor is indexed by the cell rate parameter and the transport device speed.

The examiner disagrees:

As shown in the response to the argument for claim 9, the look-up table is indexed by the cell rate parameters and transport device speed. Since as stated in claim 6, the scale factor is indexed by the look-up table, then the scale factor is also indexed by those values as a result of being determined by the look-up table mapping.

Regarding claim 12, the appellant argues that Aboul-Magd does not explicitly indicate a capacity estimator or a measured utilization factor generator.

The examiner disagrees:

Estimating network capacity and network utilization only requires the system to make a determination of the capacity and utilization from a calculation rather than determining actual numbers. Aboul-Magd finds the actual network measurements (Column 7, lines 37 – 67), but Abou-Magd also teaches mathematical calculations of the QoS and utilization of the network (Column 8, lines 7 – 14). The mathematical CAC (Column 6, lines 20 – 26) includes the EB of all the connections currently on the network (Column 6, lines 64 – 66). These EBs are just estimations based on the traffic profiles of what the connections expect to use. By considering each connection on the network's estimation of what it should be using one achieves an idea of what the total network is expected to be using and what capacity it has left.

Examiner's Remarks:

The examiner would further like to note that claims 1, 25, and 37 recite an apparatus, a computer readable medium, and a system that comprises elements such as: a first estimator, second estimator, and a controller that are claimed to perform certain functions. For example claim 1 recites "a first estimator to estimate." The actual function of estimating is never performed thus it is in the form of non-functional descriptive language and should receive limited patentable weight.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the

Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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